# List of Contents

## NUMBER 1


i Softstrip® data strip containing the table of contents for this issue

**B. J. Larkin** 1 A FORTRAN 77 program to calculate areas of intersection between a set of grid blocks and polygons

**Roger L. Nielsen** 15 TRACE.FOR: a program for the calculation of combined major and trace-element liquid lines of descent for natural magmatic systems

**M. B. Boisen, Jr.** and **G. V. Gibbs** 37 MATOP: an interactive FORTRAN 77 program for solving problems in geometrical crystallography

**Robyn Wright** and **Steven M. Thornberg** 55 SEDIDAT: a BASIC program for the collection and statistical analysis of particle settling velocity data

**Colin R. Ward** and **Andrew E. Waltho** 83 A BASIC program for in-field entry of lithologic descriptions in borehole logs to a hand-held portable computer system

**Kevin McCartney** 99 SILICO: a computer program for the three-dimensional measurement of silicoflagellate skeletons

**Witold F. Krajewski** and **Christopher J. Duffy** 113 Estimation of correlation structure for a homogeneous isotropic random field: a simulation study

*Short Notes*

**Václav Bezvoda, Josef Ježek,** and **Karel Segeth** 123 A comment on "A computer program to perform transformations of gravimetric and aeromagnetic surveys"

**Peter R. Sutcliffe** 125 Fourier transformation as a method of reducing the sampling interval of a digital time series

**Daniel O. Hayba** 131 A BASIC program for locating references cited in geoscience manuscripts

**Thomas A. Jones** 135 Geostatistical models with stratigraphic control


## NUMBER 2


i Softstrip® data strip containing the table of contents for this issue

**Mark A. Herkommer** 139 Procedures for creating a benchmarking data set

**Uwe Brand** and **Edward G. Lorek** 151 Computer analysis of atomic absorption spectrophotometer generated data: BASIC and FORTRAN 77 programs

**Paul T. Delaney** 181 FORTRAN 77 programs for conductive cooling of dikes with temperature-dependent thermal properties and heat of crystallization

**Thomas P. Frost** and **James R. Lindsay** 213 MAGMIX: a BASIC program to calculate viscosities of interacting magmas of differing composition, temperature, and water content

**Peter F. Fisher** and **Peter Galdies** 229 A computer model for barchan-dune movement

**Richard J. Lisle** 255 ROMSA: a BASIC program for paleostress analysis using fault-striation data

**B. Allard** and **C. Sotin** 261 Determination of mineral phase percentages in granular rocks by image analysis on a microcomputer

*Short Note*
**M. O. Onyekonwu** and **M. Abiye** 271 Prediction of dimensionless pressure during production from a circular reservoir with generalized boundary conditions

**NUMBER 3**

i Softstrip® data strip containing the table of contents for this issue

**Thomas H. Brown, Robert G. Berman,** and **Ernest H. Perkins** 279 Ge0-Calc: software package for calculation and display of pressure–temperature–composition phase diagrams using an IBM or compatible personal computer

**Kenneth L. Cameron, Debra D. Cameron,** and **Patrick C. Kelleher** 291 Producing geological illustrations using PC-based computer-aided drafting

**C. W. Pope, B. Cairncross, A. B. Cadle,** and **T. S. McCarthy** 299 A revised FORTRAN IV computer program for displaying coal-bearing sedimentary data

**Mark Noel** and **Mark D. Rudnicki** 321 A computer program for determining current directions from rock magnetic data

**G. F. Bonham-Carter** 339 Numerical procedures and computer program for fitting an Inverted Gaussian Model to vegetation reflectance data

**J. D. Fenton** 357 The numerical solution of steady water wave problems

**Maurizio Ripepe** 369 StrataBase: a stratigraphical database and processing program for microcomputers

**H. V. Ram Babu** and **D. Atchuta Rao** 377 Inversion of self-potential anomalies in mineral exploration

**J. L. Jensen** 389 Maximum-likelihood estimation of the hyperbolic parameters from grouped observations

*Short Note*
**Stephen J. Barnes** 409 Automated plotting of geochemical data using the Lotus SYMPHONY package

**NUMBER 4**

i Softstrip® data strip containing the table of contents for this issue

**G. V. Haines** 413 Computer programs for spherical cap harmonic analysis of potential and general fields

**H. de Mooy, J. T. A. van Hattum,** and **S. P. Vriend** 449 A RQ-mode factor-analysis program for microcomputers. A Pascal program

**M. Hattingh** 467 A new data adaptive filtering program to remove noise from geophysical time- or space-series data

**Scott J. Hills** 481 Outline extraction of microfossils in reflected light images

**Marijke van Heeswijk** and **Christopher G. Fox** 489 Iterative method and FORTRAN code for nonlinear curve fitting

**Peter J. J. Friedinger** 505 BASTA—subsidence and paleotemperature modeling of rift basins

**Nagarajan Prabhakaran** and **Gautam Sen** 527 THERMOBAR: a Pascal program for calculating pressure and temperature of mantle rocks

*Short Note*
**L. J. Poppe, J. J. Fredericks,** and **J. C. Hathaway** 541 A computer program to calculate centrifugation parameters for sedimentation analyses

**NUMBER 5**

i Softstrip® data strip containing the table of contents for this issue

**G. T. Thompson** and **S. J. Balch** 547 An efficient algorithm for polynomial curve fitting

**Christian Christiansen** and **Daniel Hartmann** 557 SAHARA: a package of PC computer programs for estimating both log-hyperbolic grain-size parameters and standard moments

**Lawrence W. Martz** and **Eeltje de Jong** 627 CATCH: a FORTRAN program for measuring catchment area from digital elevation models

**Donald O. Doehring, Wayne A. Charlie,** and **George E. Veyera** 641 An APL function for modeling *p*-wave induced liquefaction

**Matthew J. Kramer** 645 GENPLOT: a formula-based Pascal program for data manipulation and plotting

**John Broome** 659 An IBM-compatible microcomputer workstation for modeling and imaging potential field data

**Evangelos A. Yfantis** and **George T. Flatman** 667 On sampling nonstationary spatial autocorrelated data

**Ramesh Kumar T. Reddy** 687 Microcomputer programs to manage and analyze digitized geological data—applications in exploration modeling

**U. C. Herzfeld** and **M. A. Sondergard** 699 MAPCOMP—a FORTRAN program for weighted thematic map comparison

*Short Note*

**J. G. Tough** 715 The computation of the area, centroid, and principal axes of a polygon

**NUMBER 6**

*SPECIAL ISSUE*

## BIBLIOGRAPHY OF COMPUTER APPLICATIONS IN THE EARTH SCIENCES, 1948–1970

**Introduction** v

**Bibliography** 719

**Appendix 1** 917 Subject codes

**Appendix 2** 919 Index

I Softstrip® data strip containing the table of contents for this issue